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LENTILS: SITUATION AND OUTLOOK

August 3, 2010

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LENTILS: SITUATION AND OUTLOOK

The growth of the lentil industry in Canada has been very rapid and a marketing success story. Since 2005-2006, Canada has become the largest lentil exporter in the world and is expected to account for about 80% of 2009-2010 global exports. Production and exports in 2009-2010 are expected to have a new record in volume and value. Prices in 2009-2010 are forecast to decrease because of significantly larger supply but remain historically high. The value of Canadian exports in 2009-2010 is forecast at $1.2 billion compared to $250 million in 2005-2006. Canadian production in 2010-2011 is expected to decline due to very wet conditions which hindered seeding and will significantly reduce the area harvested and lower yields. This issue of the Market Outlook Report examines the situation and outlook for lentils.

CROP CHARACTERISTICS

Lentils are best adapted to production in the cooler temperate zones of the world or in the winter season in countries, such as India and Australia, which have a warm winter and a hot summer. Lentils have a restricted root system which is only moderately resistant to high temperatures and drought. They do not tolerate water logging, flooding or soils with high salinity. The seed coat colour of lentils can be clear, green, tan, grey, brown or black. The cotyledon is yellow, red or green. The two main market types are red and green.

In the Prairie Provinces of Canada, lentils are best suited to the Brown and Dark Brown soil zones, but can be grown successfully in the Black soil zone in years without excessive moisture. The cold winters in the prairies offer excellent protection against insects and disease. It is for these reasons that Saskatchewan is ideally suited for lentil production and therefore has an agronomic advantage over most competing countries. Lentils work well in rotation with cereals, such as spring or durum wheat. Nitrogen fertilizer is not recommended because lentils possess the ability to fix nitrogen in nodules on the roots, where it can be used for plant growth. The nitrogen fixed by lentils is also used by other crops in the following years. To maximize the nitrogen fixation ability, lentil seed should be inoculated. Lentils require 90-100 days to mature and should be seeded as soon as the average soil temperature is greater than 5° Celsius.

The green lentil varieties produced in Canada have a green seed coat and yellow cotyledon. They are normally referred to as large green, medium green and small green, based on the seed size. The **large green** type includes the Laird, Glamis, Sovereign, Grandora, Plato and Sedley varieties. Their seed size is 60-70 grams/1000 seeds. The **medium green** type includes the Richlea, Vantage and Meteor varieties, with seed size of 50-55 grams/1000 seeds. The **small green** type includes the Eston, Viceroy and Milestone varieties, with seed size of about 35 grams/1000 seeds. Canadian red lentils have a brown or pale green seed coat with red cotyledons. The **red** type includes Crimson, Redcap, Redberry, Robin, Blaze, Rouleau and Rosetown, with seed size of 30-40 grams/1000 seeds.

MARKETING

The lentils produced in Canada are sold on the open market to dealers who buy, clean and ship lentils to domestic and export customers. There are several processing plants in Saskatchewan capable of de-hulling and splitting red and green types of lentils for the world market.

Lentils are either bagged and shipped to ports in containers or moved from the prairies to port by hopper car. Most of the Canadian lentils are exported through the ports of Vancouver and Montreal. In addition to whole lentils, Canada also exports split lentils. Split lentil exports have been increasing, as Canadian splitting capacity has expanded through the construction of new plants.

Since there is no futures market for lentils, prices are negotiated directly between dealers and customers, based on supply and demand factors

for each type of lentil, for immediate delivery or for delivery at some future date.

Some lentils are grown under production contracts, which guarantee a price for part of the production, but most are sold on the spot market.

Although the **large green** type of lentils is exported all over the world, the main importers are north-western and southern Europe, Algeria, South America, and Central America. The **medium green** type is exported mainly to north-western Europe, Spain, Algeria, and the United States (US). The **small green** type is exported mainly to Morocco, Greece, Italy, Egypt, and Mexico. The **red** type is exported mainly to southern Asia, the Middle East and northern Africa. The **dark green speckled** type is exported mainly to France and the **brown** type mainly to Spain.

USE

On average, about 70% of all world lentil production is consumed in the countries where they are produced. Total world use has been trending upwards during the past 10 years.

Lentils are generally used for food. They are canned or packaged, whole or split, for retail sale, or processed into flour. They are then used in soups, stews, salads, casseroles, snack food and vegetarian dishes. In southern Asia, split red lentils are used in curries. Lentil flour is added to cereal flour to make breads, cakes and baby foods. Lentils are often used as a meat extender or substitute because of the high protein content and quality. Lentils have a shorter cooking time than other pulses and do not need to be pre-soaked.

Only a relatively small volume of low quality lentils are used for livestock feed when degrading factors such as chipping, wrinkling or staining make them undesirable for human food uses where visual attributes are important. However nutritional analysis indicates that they make an excellent feed.

HEALTHY DIET

Pulses, including lentils are increasingly being used in health-conscious diets to promote general well-being, reduce the risk of illness and heart disease. They are low in fat, low in sodium, cholesterol free, high in protein, and are an excellent source of both soluble and insoluble fibre, complex carbohydrates, and vitamins and minerals, especially B vitamins, potassium and phosphorus.

Lentils are an inexpensive, high quality source of protein. Studies have reported the beneficial effects of soluble dietary fibre on cardiovascular disease in humans, especially in lowering both total serum and LDL-cholesterol levels. In addition, clinical research has shown soluble fibre to be beneficial in the management of type-2 diabetes. Insoluble dietary fibre consumption can be beneficial to a healthy colon and has been associated with reducing the risk of colon cancer. Diets high in fibre have demonstrated beneficial effects on weight loss because they deliver more bulk and less energy.

Flour made from lentils is gluten free and is a very nutritious option for people with celiac disease.

QUALITY CONTROL

The **Canadian Grain Commission (CGC)** administers quality control standards for lentils however most of the lentils are sold on the specification agreed between the buyer and seller. The grades are No.1, 2, 3 and extra 3 Canada other than Red, and No.1, 2, 3 and extra 3 Canada Red. Lentils which do not meet the listed grade standards are graded Sample Canada. The major quality concerns in lentil grading are damage due to heating and peeling, split or broken seed, seed discolouration, as well as foreign material. For further information, or to access the *Official Grain Grading Guide*, please visit the CGC website (www.grainscanada.gc.ca).

The **Canadian Special Crops Association** (CSCA - http://www.specialcrops.mb.ca) establishes export guidelines and serves as a forum for exporters, dealers and brokers involved in the industry of trading Canada's pulse and special crops, including lentils. The website includes a section where buyers can submit a request for prices.

Pulse Canada (www.pulsecanada.com) is an industry organization, with the CSCA and provincial pulse growers' organizations as members. It is involved in market development, market access, policy issues and coordination of scientific research. The website contains information on pulse crops, markets, and health and nutrition.

CURRENT SITUATION

Production

Lentil production for the major lentil producing nations has been trending upwards during the past 7 years, ranging from 2.1 million tonnes (Mt) in 2002-2003 to 2.9 Mt in 2009-2010. Among the main producers, production has been trending upwards

in Canada, the US, and Australia, but has been highly variable and trending down in India, Bangladesh, Syria and Turkey. In the US, production increased sharply when lentils were first included under the loan program in 2002.

Although specific data is not available on the types of lentils grown, an estimated 70% of world lentil production is the red type, 25% green type and 5% brown and other types. Canada and the US are large producers of the green type whereas the rest of the world produces mainly the red type.

WORLD: MAJOR LENTIL PRODUCERS

crop year	2006 -2007	2007 -2008	2008 -2009	2009 -2010p	2010 -2011f
	thousand tonnes				
Production					
Canada	693	734	1,043	1,510	1,425
India	946	871	571	751	820
Turkey	623	580	88	280	550
United States	289	155	109	264	265
Australia	52	131	51	143	155
Total Production	**2,603**	**2,471**	**1,862**	**2,948**	**3,215**

p: provisional forecast
f: forecast, AAFC, Pulse Australia and USDA
Source: FAO, USDA, Statistics Canada and Pulse Australia

Canadian lentil production has increased in response to market signals, which has contributed to the diversification of crop production in the Prairie Provinces, especially in Saskatchewan. The increase in lentil production has proven to be valuable in crop rotations which help to control weeds, diseases and insects and improve soil texture and fertility. The higher production has also contributed to the expansion of the pulse crops handling, marketing and processing industry, which has increased employment opportunities in rural areas. The province of Saskatchewan accounts for more than 95% of Canadian lentil production. The balance is produced in Alberta where area is increasing.

Canadian production reached a record of 1.51 Mt in 2009-2010. Canada is the main producer of the green type of lentils in the world, accounting for about 75% of world production. Production of the red type has been increasing over the years as the large major importing countries consume mostly the red variety. The production shift towards the red variety reflects the higher demand for the reds over the past several years from the large import countries in the Middle East and Asia and the development of varieties suited to production in Western Canada. The Canadian lentil harvest generally occurs during the period from mid-August to early October.

Trade

During the past 6 years, world trade for the 6 largest exporters has been trending upwards from 984 thousand tonnes (Kt) in 2004-2005 to 1,760 Kt forecast for 2009-2010. The top four exporting countries (Canada, US, Australia, and Turkey) account for more than 90% of world exports. The red variety as a percent of total exports has been increasing. It is estimated that about 75% of the exports were the red type, 20% green and 5% brown and other. Canada's share of world exports was 38% in 2004-2005, and is forecast to increase to about 80% in 2009-2010.

Due to the increase in export demand in 2009-2010, Canada is expected to export about 90% of its production compared to about 50% in 2004-2005. Comparatively, most other major producers export a relatively small portion of their production. Canadian lentil exports are dispersed throughout the world to about 120 countries however just three countries (India, Turkey and Bangladesh) now account for approximately 50% of total exports. The increase in demand is due to a severe drought in 2007 and 2008 in Turkey and India which sharply reduced lentil production.

WORLD: MAJOR LENTIL EXPORTERS

crop year	2004 -2005	2005 -2006	2006 -2007	2007 -2008	2008 -2009	2009 -2010f
	thousand tonnes					
Canada	372	576	853	811	973	1,395
United States	83	160	118	114	116	193
Australia	150	201	103	74	50	128
Turkey	171	118	147	130	25	44
India	137	0	0	0	0	0
Syria	71	0	0	0	0	0
Total	**984**	**1,055**	**1,221**	**1,129**	**1,164**	**1,760**

f: forecast
Source: FAO, Statistics Canada, USDA and Global Trade Atlas

Domestic Use
Canadian domestic use (which includes food, feed, seed, dockage, and waste) accounts for about 15% of production.

Prices
Canadian prices are largely determined in the international markets because Canada exports about 85% of its production. Canada produces and exports most of the green type of lentils therefore the level of production in Canada has a greater influence on green type prices. Despite Canada's increasing share of world red lentil exports over the last several years, the supply of red lentil production in Asia and the Middle East also has a major influence on prices. The substitution of one type of lentil with another is very limited, which can create wide price spreads to exist between different types. However, the direction of prices for the different types is generally correlated.

During the period from 1996-1997 to 2006-2007 the average price of lentils ranged between a low of CAN$230/t in 2005-2006 to $470/t in 1996-1997. From 2007-2008 to 2009-2010 however, average prices have been $635/t, $750/t and $630/t respectively due mostly to lower supply from the 5 main producing nations. The increase of Canadian production during the last several years was opportunistic in that they were able to fill the shortfall in supplies at historically high prices.

OUTLOOK: 2010-2011

In 2010, US lentil area is expected to increase by more than 23%, however a return to trend yields will result in production increasing only slightly higher. Turkish production is expected to return to normal levels after consecutive years of drought.

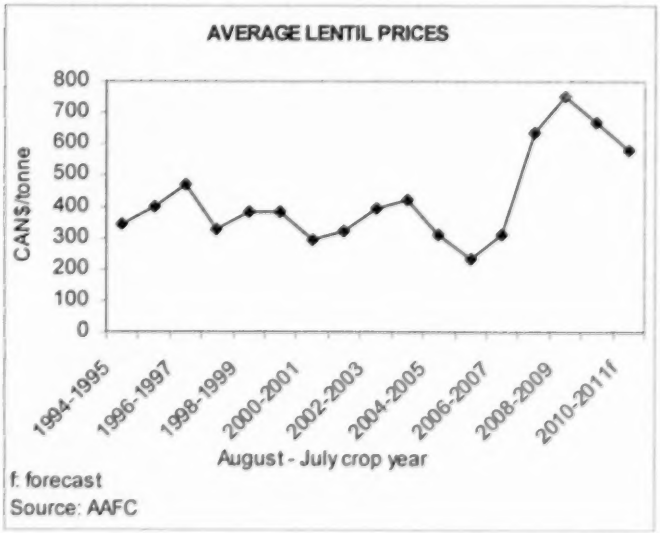
The statistics Canada survey of producers in May indicates area seeded to lentils in Canada increase by 40% from the 2009-2010 area. However due to the excessive rain, a significant portion of this area did not get seeded and will not be harvested. Excess moisture will also decrease the average yield per harvested acre. Production is based on assuming normal precipitation for the growing and harvest periods, however a higher than normal abandonment has been used to account for the current excessive seeding conditions.

Despite the larger seeded area, production is expected to decrease by 6% compared with 2009-2010 to 1.43 Mt due to lower harvested area and yields. In 2009-2010, average yields were significantly above trend. The main factor to watch

CANADA: LENTIL EXPORTS

crop year	2004 -2005	2005 -2006	2006 -2007	2007 -2008	2008 -2009	Aug 2009 -Apr 2010
			thousand tonnes			
India	25	81	31	56	199	228
Turkey	11	26	130	68	68	226
Bangladesh	10	15	40	71	46	114
UAE	6	20	81	50	70	89
Algeria	68	50	70	71	54	71
Sri Lanka	3	3	19	25	60	70
Egypt	17	54	29	38	55	59
Colombia	42	52	59	59	63	53
Mexico	23	33	32	25	29	34
Pakistan	8	27	61	18	50	37
Italy	18	27	23	23	21	22
Others	367	466	454	527	441	226
Total	**451**	**671**	**852**	**811**	**973**	**1,229**
Full Crop year forecast (Aug 2009 – Jul 2010)						1,395

Source: FAO, Statistics Canada, USDA and Global Trade Atlas



f: forecast
Source: AAFC

is precipitation during the growing and harvest periods. At the start of seeding, soil moisture reserves in the lentil growing areas were adequate to excessive. Production is expected to decrease for all types except for the red variety as a result of the significantly higher percent seeded to the reds.

Area seeded for the red type in 2010 is expected to increase to about 60% of the total lentil area seeded compared to about 32% seeded in 2007, while the large green variety in 2010 is expected to decline to about 28% of total area. Production of the large green variety is expected to decline by 19% from last year however lower yields are expected to account for 15% of the decline.

Canadian supply is forecast to decrease marginally to 1.45 Mt, due to lower yields and higher abandonment. Exports, however, are expected to decrease 19% from the prior year record due to lower supplies and larger production in Turkey and India, our top 2 export markets. Domestic production in Turkey and India is expected to increase by 33% or about 0.34 Mt in 2010 due to adequate rains and a return to normal yields. Carry out stocks in Canada are forecast to increase substantially, with the stocks-to-use ratio increasing substantially as well. Average producer prices are forecast to decrease from 2009-2010 primarily because of the lower export demand. Prices for the red type expected to decline the most on a per cent basis due to the larger supply and slightly lower demand.

CANADA: LENTIL SUPPLY AND DISPOSITION

August - July crop year		2006 -2007	2007 -2008	2008 -2009	2009 -2010p	2010 -2011f
Seeded Area (Kha)		516	540	706	971	1,360
Harvested Area (Kha)		504	534	700	963	1,141
Yield (t/ha)		1.37	1.37	1.49	1.57	1.25
				thousand tonnes		
Carry-in stocks		**485**	**199**	**51**	**32**	**25**
Production						
Large Green		245	266	363	510	400
Medium Green		11	60	124	42	35
Small Green		123	147	93	171	160
Red		306	238	445	764	810
Dark Green and Brown		8	23	18	23	20
Total Production		**693**	**734**	**1,043**	**1,510**	**1,425**
Imports		13	9	7	6	4
Total Supply		**1,191**	**942**	**1,101**	**1,548**	**1,454**
Exports						
India		130	68	68	270	195
Turkey		31	56	199	260	130
Bangladesh		40	71	46	140	75
Europe		125	122	98	110	105
Middle East and Africa		241	237	241	295	300
Pacific Rim		85	48	113	110	115
North and South America		200	209	208	210	210
Total Exports		**852**	**811**	**972**	**1,395**	**1,130**
Total Domestic Use		140	80	98	128	150
Total Use		**992**	**891**	**1,070**	**1,523**	**1,280**
Carry-out Stocks		**199**	**51**	**32**	**25**	**175**
Stocks-to-use ratio (%)		20%	6%	3%	2%	14%
Seeded Area (kac.)		1,274	1,334	1,743	2,398	3,361
Harvested Area (kac.)		1,244	1,319	1,728	2,378	2,819
Yield (lb/ac.)		1,227	1,227	1,331	1,400	1,115
Average producer price*						
Large Green	$/t	340	679	769	750	640
	$/lb	0.15	0.31	0.35	0.34	0.29
Medium	$/t	282	626	719	660	595
	$/lb	0.13	0.28	0.33	0.30	0.27
Small Green	$/t	313	564	650	620	550
	$/lb	0.14	0.26	0.30	0.28	0.25
Red	$/t	340	747	833	660	550
	$/lb	0.15	0.34	0.38	0.30	0.26

* Saskatchewan, No. 1 Canada grade
p: provisional forecast f: forecast, AAFC
Source: Statistics Canada and AAFC

In the short-term prices are expected to be pressured lower due to the larger supplies versus slightly lower demand. In the medium term increasing demand from India due to income and population growth should continue to support expanding area in Canada with good returns.